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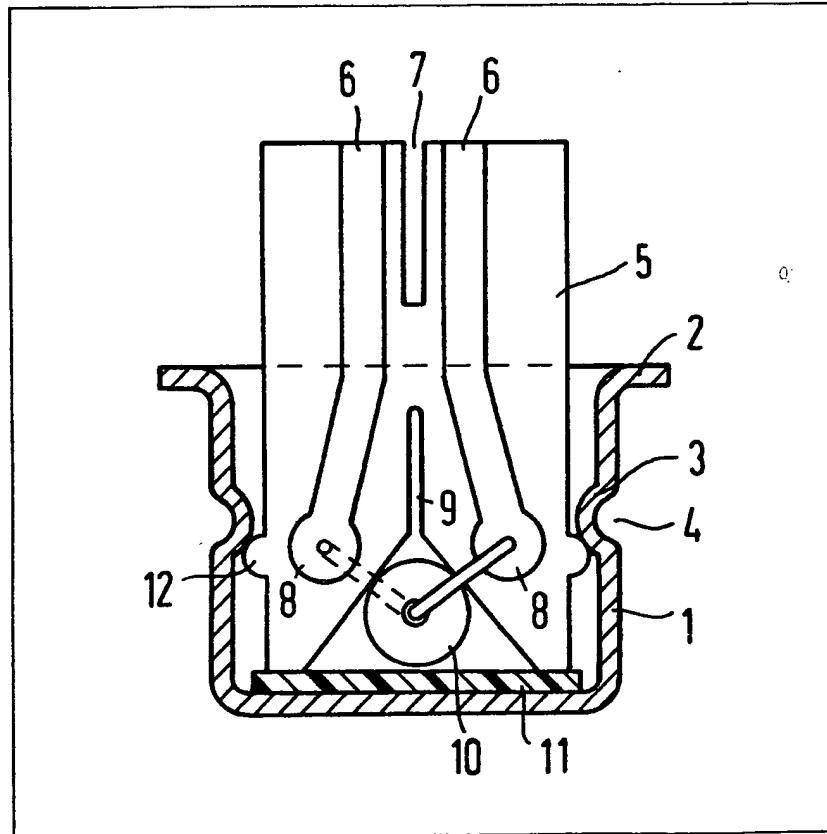
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UK Patent Application (19) GB (11) 2 035 683 A

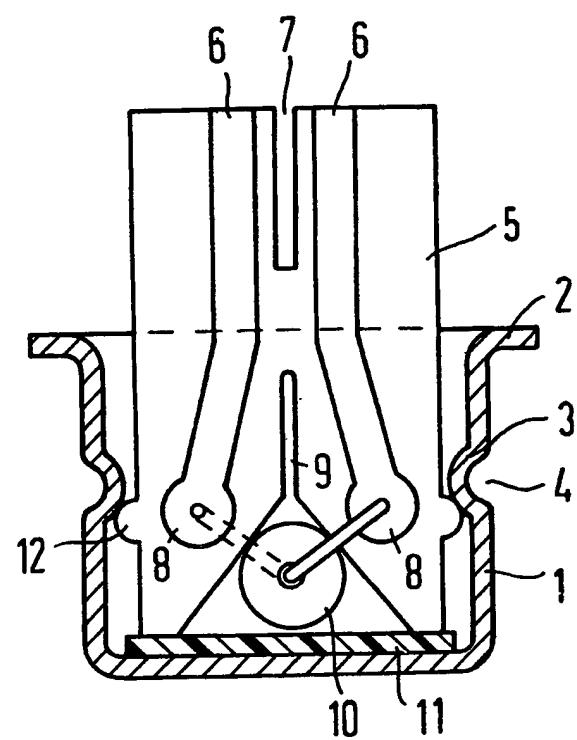
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(54) A temperature sensor

(57) A temperature sensor is disclosed for incorporation into a wall which is in contact with a medium the temperature of which is to be measured. Known temperature sensors entail problems in their electrical connections in domestic appliances equipped with modern wiring and connecting elements. The invention aims to simplify the temperature sensor in production and assembly. In an embodiment of the present invention a pot-shaped housing (1) is provided with detent devices (4) which co-operate with complimentary detent devices (12) of a conductor-carrying plate (5) which carries a temperature-dependent resistor (10). The conductor-carrying plate (5) is located in the housing by means of a hardenable resin and has an end portion protruding out of the housing, which comprises blade contacts (6) for plug connections of further elements.



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SPECIFICATION

A temperature sensor

5 The present invention relates to a temperature sensor comprising a temperature-responsive resistor.

10 AT-Patent Application 23 26/65 (Serial No. 1099938) discloses a temperature sensor which

15 entails problems in appliances equipped with modern wiring and connecting elements. Particularly in domestic appliances, which are manufactured in large numbers, ease of assembly and low material expenditure for the individual parts is important.

20 Prior art temperature sensors contain electrical supply lines of wire or flat plugs for so-called flat plug sleeves. In both cases, individual plug connectors of a particular kind, which are not economically connectable with the modern wiring technique, for

25 example with flat conductor tape lines, are necessary for cable ends of the appliance wiring. Wiring of that kind require uniform types of multiple plug connectors which do not fit the known special individual plug connectors.

30 According to the present invention there is provided a temperature sensor comprising a housing having a base and side wall means extending from the base and provided with detent means, a conductor plate extending into the housing, carrying a

35 temperature responsive resistor, being provided with detent means co-operating with the detent means of the housing and comprising blade contacts projecting outwardly from the housing for connection to further elements.

40 The housing may be pot-shaped and simply deep-drawn or injection-loaded. The conductor plate may be etched in large numbers on continuous copper-clad plates of insulating material and thereafter by stamping cut out in the final form. Before

45 severing individual conductor plates from a strip, the temperature-responsive resistors can be plugged in automatically and soldered. An equipped conductor plate which may be already constructed as a plug connector part connected to an appliance wiring

50 may then only need to be detented and grouted in the housing. The temperature sensor is then finished. These operations may be automated to a large extent so that expensive manual operations can be avoided.

55 The detent means of the housing may comprise an annular bead producing an annular groove at the outside of the housing. This may serve as a bearing for a locking ring for mounting the temperature sensor in a wall opening.

60 By using fine steel for the housing, the temperature sensor can advantageously serve for the measurement of media which contain water without the risk of corrosion.

An embodiment of the present invention will now

65 be more particularly described by way of example and with reference to the single figure of the accompanying drawing.

The drawing shows a pot-shaped housing 1 with a flange-shaped rim 2 which in the case of a built-in

70 temperature sensor sits on a rim of an insertion

opening of a wall (not shown) which contacts the medium, for example water, the temperature of which is to be measured.

70 A bead 3 pressed into the shell of the housing 1 at its outer periphery forms an annular groove 4 which can serve for the reception of a locking ring which assures firm seating of the temperature sensor in the insertion opening.

75 A conductor plate 5 carries two conductor tracks 6 which are constructed as contact-blade-like plug connections at their upper end and have soldering connections 8 at their lower end. A slot 7 between the plug connections serve for the reception of the contact spring separating wall of a not illustrated plug. The conductor plate has a wedge shaped recess between the soldering connections 8 and is slotted almost up to the level of the housing rim. The wedge-shaped recess serves for the reception of the temperature-dependent resistor, for example of a

80 hot conductor 10, connecting wires of which lead into the soldering connections 8. For conductive insulation of the hot conductor from the housing, the housing base is covered by an insulating material 11, which has a relatively good thermal conductivity.

85 90 The annular bead 3 serves as a detent element on the housing side and co-operates with lugs 12 of the inserted conductor plate 5.

95 During introduction of the conductor plate, the lugs first hit against the annular bead. After increased force, the limbs of the conductor plate 5, which carry the lugs, resiliently deviate back inwardly by reason of the deep slot 9 until the lugs have stepped over the crest of the bead. Together with the limb ends at the housing bottom, they secure the

100 position of the conductor plate in all directions. After assembly, the housing 1 is filled up to the rim with a synthetic material which after hardening positively locates all the elements.

105 The above described embodiment can be manufactured and assembled in a simple manner and is compatible with the modern wiring techniques.

CLAIMS

110 1. A temperature sensor comprising a housing having a base and side wall means extending from the base and provided with detent means, a conductor plate extending into the housing, carrying a temperature responsive resistor, being provided

115 with detent means co-operating with the detent means of the housing and comprising blade contacts projecting outwardly from the housing for connection to further elements.

120 2. A temperature sensor as claimed in claim 1, comprising grouting means to locating the conductor plate in the housing.

125 3. A temperature sensor as claimed in claim 2, wherein the grouting means comprises a synthetic casting resin.

130 4. A temperature sensor as claimed in any one of the preceding claims, the detent means of the housing comprising an inwardly projecting bead which extends peripherally around the side wall means and the detent means of the contact plate comprising outwardly projecting convex lobes.

5. A temperature sensor as claimed in any one of the preceding claims, wherein the conductor plate is provided with a central slot which extends towards the blade contacts and has an end disposed at a spacing from the base of the housing equal to approximately twice the spacing of the detent means of the contact plate from the base of the housing.
6. A temperature sensor as claimed in any one of the preceding claims, wherein the housing comprises steel.
7. A temperature sensor substantially as hereinbefore described with reference to the accompanying drawing.

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